



MLS-310

External Speaker with 10 Watt Amplifier

The **MLS-310** high quality waterproof amplified communications speaker designed to operate with Marine VHF's with maximum of 4 watts output power. The **MLS-310** amplifies the audio from the marine VHF to 10W providing loud and clear audio. The volume control on the front of the speaker allows the audio level to be adjusted or to be turned off. Supplied with 6.5 feet of speaker wire for connection of a Marine VHF, 6.5 feet of power cable to connect to 12VDC, bracket and flush mounting hardware.

INSTALLATION

1) MOUNTING BRACKET INSTALLATION

1. Remove the **MLS-310** from the bracket by removing the two Mounting Bracket Knobs.
2. Choose a place to mount the **MLS-310**.
3. Use the bracket as a template to mark the locations of the mounting holes.
4. Use a 5.2-mm (17/64") bit to drill the holes, and secure the bracket with the supplied screws, spring washers, flat washers, and nuts (Figure 1 & 2).
5. Insert the **MLS-310** into the bracket with the Mounting Bracket Knobs which were removed in step 1.
6. Set the **MLS-310** to the preferred angle, then tighten the Mounting Bracket Knobs to fasten the **MLS-310** to the bracket.
7. Route and secure the connection cable from the **MLS-310** to the Marine VHF. Connect the WHITE wire of the connection cable to the marine VHF's positive (+) external speaker output and the shield of the connection cable to the negative (-) external speaker connection.
8. Connect the RED wire of the connection cable from the **MLS-310** to a Positive (+) 12VDC positive source (capable of supplying 1.5A of current) and the BLACK wire of the connection cable to Negative (-) 12VDC source.

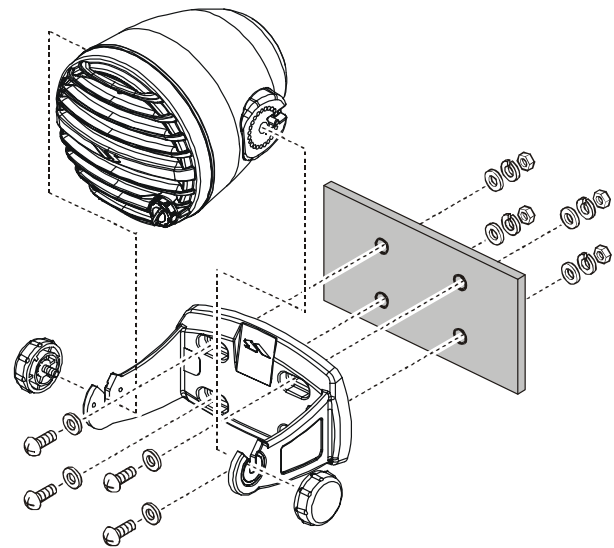


Figure 2 (Wall Mount)

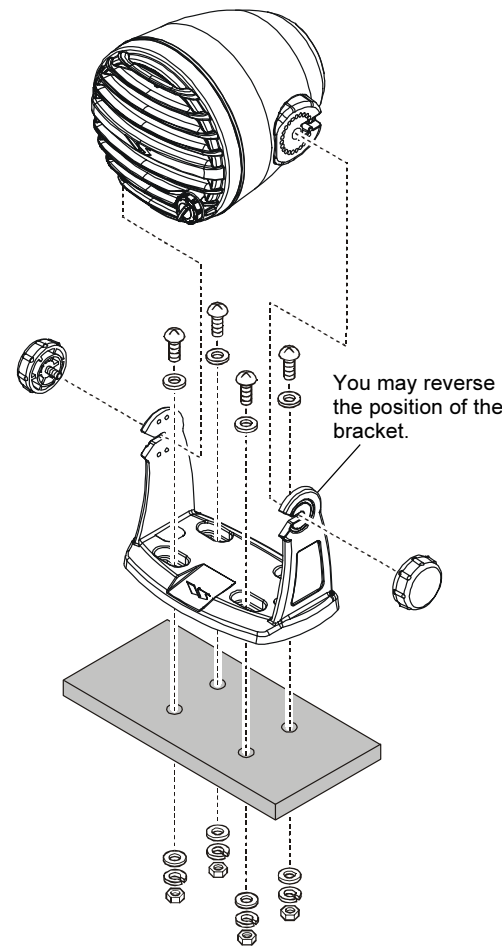
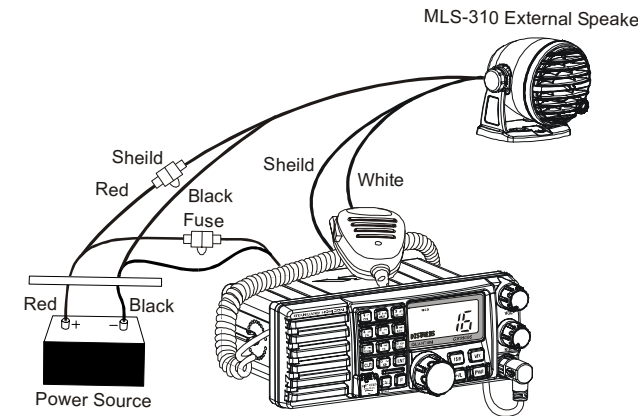
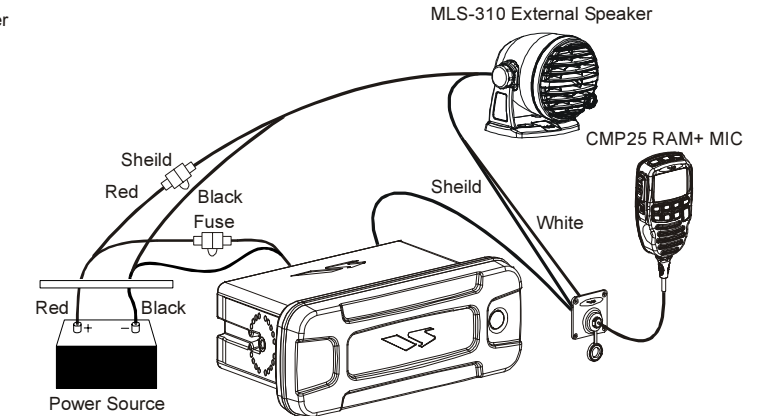


Figure 1 (Desktop Mount)



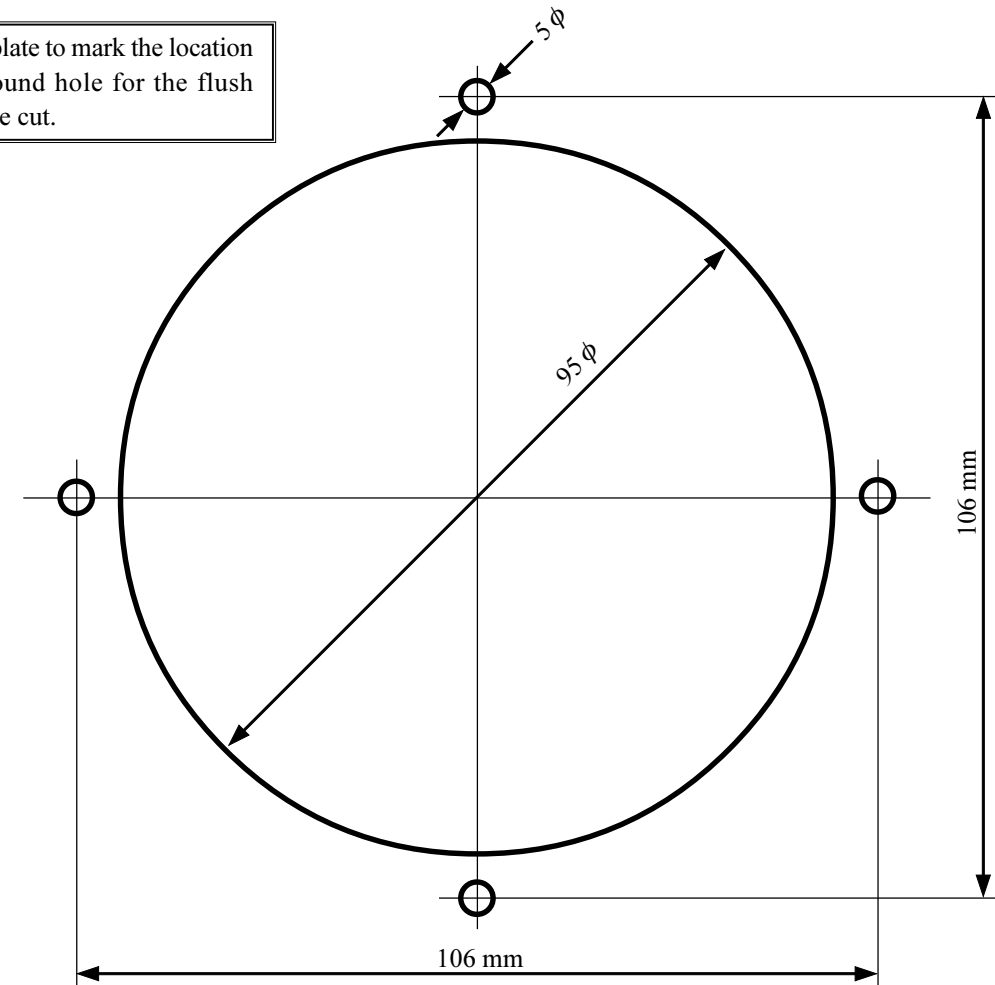
Typical Radio Connections



Phantom Series Connections

TEMPLATE for the MLS-310

Use this template to mark the location where the round hole for the flush mount is to be cut.



2) FLUSH MOUNT INSTALLATION

1. Remove the **MLS-310** from the bracket by removing the two Mounting Bracket Knobs, then remove the rear case of the **MLS-310** from the main body by removing the four screws (Figure 3).
2. Assemble the supplied M4x50 Screw, Nut, and Washer as the Figure 4.
3. Use the supplied template to mark the location where the round hole is to be cut. Confirm the space behind the dash or panel is deep enough to accommodate the **MLS-310** (at least 4.3 inch (110 mm) deep). There should be at least 1 inch (2.5 cm) between the **MLS-310**'s heatsink.
4. Cut out the round hole (one large hole and four small mounting holes) and inset the **MLS-310** from the front side.
5. Referring to Figure 5, pass through the four M4x50 Screws (with Nut and Washer) into the mounting holes on the panel from the back side and turn the M4x50 Screws five times.
6. Turn the four Nuts to adjust the tension so that the **MLS-310** is tight against the mounting surface.
7. Route and secure the connection cable from the **MLS-310** to the Marine VHF. Connect the WHITE wire of the connection cable to the marine VHF's positive (+) external speaker output and the shield of the connection cable to the negative (-) external speaker connection.
8. Connect the RED wire of the connection cable from the **MLS-310** to a Positive (+) 12VDC positive source (capable of supplying 1.5A of current) and the BLACK wire of the connection cable to Negative (-) 12VDC source.

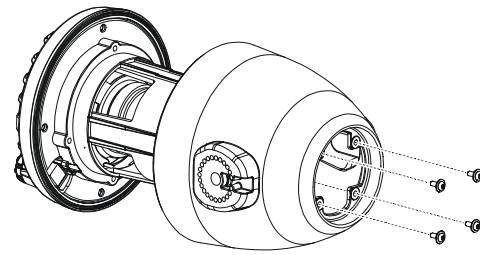


Figure 3

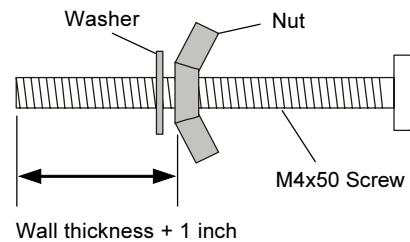


Figure 4

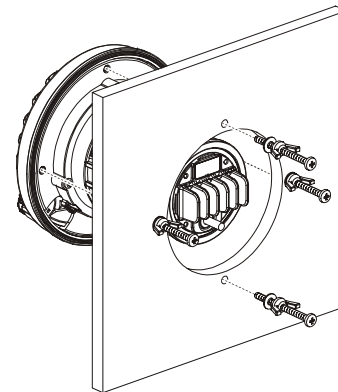


Figure 5

OPERATION

1. Before connecting the **MLS-310** to the radio, turn on the radio and set the AF VOL level to minimum.
2. Turn the radio off then connect the **MLS-310** to the radio.
3. Rotate the **MLS-310** volume knob to "12 o'clock" position.
4. Turn the radio on and adjust the **VOL** knob on the radio to a comfortable listening level
5. After adjusting the volume on the radio, you may adjust the **MLS-310** volume or turn off the speaker using the volume knob.

REPLACEMENT PARTS

Mounting Bracket (Black):	RA0636400
Mounting Bracket (White):	RA0636500
Mounting bracket Knobs (Black):	RA045910A
Mounting bracket Knobs (White):	RA043770A
Volume knob (Black):	RA0652800
Volume knob (White):	RA0635600
Mounting bracket mounting hardware:	U9900147

SPECIFICATIONS

Supply Voltage:	13.8 VDC \pm 15 %
Current Drain:	1.5 A @13.8 VDC, VOL Knob MAX, Audio Input Level: 700mVrms
Audio Input Level:	700mVrms (Nominal) 1Vrms (Maximum)
Input Impedance:	1.8 k Ω (Approx.)
Speaker Impedance:	8 Ω
Audio Output:	8 W @13.8 VDC, 10% THD Audio Input Level: 700mVrms
Maximum Audio Output:	10 W @13.8 VDC, Audio Input Level: 700mVrms
Operating Temperature:	-4 $^{\circ}$ F to +140 $^{\circ}$ F (-20 $^{\circ}$ C to +60 $^{\circ}$ C)
Connection Cable Length:	6.5 feet (2 m)